AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Cancel claims 1 through 26.

27. (New) A detector module for radiation measurement comprising:

a detector array having a first surface for facing a radiation source, a number of detector elements, and a second surface for facing away from the radiation source;

a conductor track carrier spaced from the second surface of the detector array and provided with conductor tracks;

first connections of detector elements located on the second surface of the detector array being connected to said conductor tracks by bonding wires;

a bore in the conductor track carrier for each detector element; and

the bonding wires of the first connections of the detector elements being guided through said bores in the conductor track carrier towards a side of the conductor track carrier facing away from the detector array, for connection to the conductor tracks formed on the surface of the conductor track carrier facing away from the detector array;

the conductor tracks being guided to signal-processing electronics to process signals from individual detector elements.

28. (New) A detector module according to claim 27 wherein said detector elements are integrated with amplifier electronics.

29. (New) A detector module according to claim 27 wherein the detector elements comprise highly sensitive drift detector cells monolithically integrated with field effect transistors.

30. (New) A detector module according to claim 27 including second connections of the detector elements connected by chain bonding connections to a bus structure on the detector array.

31. (New) A detector module according to claim 30 wherein the bus structure is provided adjacent the external edges of the detector array and bus lines of the bus structure being connected by bonding wires to the conductor tracks on the conductor track carrier.

32. (New) A detector module according to claim 27 wherein the detector array and the conductor track carrier are mounted in a housing.

33. (New) A detector module according to claim 32 wherein the housing is formed of a material with high thermal conductivity and low X-ray fluorescence capacity.

34. (New) A detector module according to claim 32 wherein the housing is formed of graphite.

35. (New) A detector module according to claim 32 wherein the signal-processing electronics are provided in the housing.

36. (New) A detector module according to claim 27 wherein the signal processing electronics are provided on a circuit support disposed on the side of the conductor track carrier facing away from the detector array.

37. (New) A detector module according to claim 27 including a radiation shield for screening the signal processing electronics from the radiation source.

38. (New) A detector module according to claim 37 wherein the radiation shield is located between the conductor track carrier and the signal processing electronics.

39. (New) A detector module according to claim 37 wherein the radiation shield has a first layer of a chemically stable material with atoms of high atomic number.

40. (New) A detector module according to claim 39 wherein said first layer has tantalum atoms.

41. (New) A detector module according to claim 39 wherein said first layer has tungsten atoms.

42. (New) A detector module according to claim 39 wherein the first layer of the radiation shield has a thickness of more than 300 μm.

43. (New) A detector module according to claim 39 including along a side of the first layer of the radiation shield facing the radiation source, a second layer of a material with atoms of medium atomic number.

44. (New) A detector module according to claim 43 wherein said second layer has one of titanium, vanadium and chromium atoms.

45. (New) A detector module according to claim 43 wherein the second layer of the radiation shield has a thickness in excess of 50 μm.

46. (New) A detector module according to claim 43 including, along a side of the second layer of the radiation shield facing the radiation source, a third layer of a material with atoms of low atomic number.

47. (New) A detector module according to claim 46 wherein said third layer has aluminum atoms.

48. (New) A detector module according to claim 27 wherein the conductor track carrier is coupled with a circuit support by a flexible connection film.

49. (New) A detector module according to claim 27 in which the conductor track carrier is coupled with the signal-processing electronics by a flexible connection film.

50. (New) A detector module according to claim 27 having one of a hexagonal, pentagonal or quadrangular shape.

51. (New) A detector module according to claim 27 wherein contact between the detector array and the conductor track carrier includes a flip-chip contact.

52. (New) A detector module according to claim 27 including an intermediate layer having a dielectric constant less than that of material forming the conductor track carrier, said intermediate layer being provided between mechanically stable carrier material of the conductor track carrier and a signal-carrying metallization plane of the conductor tracks.

53. (New) A detector module according to claim 52 wherein the intermediate layer has a thickness corresponding approximately to the width of at least one of the signal-carrying conductor tracks.

54. (New) A detector module according to claim 52 wherein said intermediate layer is formed of a material including one of benzocyclobutanes and polyphenylquinoxalines.

55. (New) A detector module according to claim 52 including screening conductor tracks in the metallization plane between the signal-carrying conductor tracks, and further screening conductor tracks at the same point in a second metallization plane between the stable carrier material of the conductor track carrier and the dielectric intermediate layer.

56. (New) An X-ray detector system, comprising:

a plurality of detector modules;

each detector module including: a detector array having a first surface for facing a radiation source, a number of detector elements, and a second surface for facing away from the radiation source, a conductor track carrier spaced from the second surface of the detector array and provided with conductor tracks, first connections of detector elements located on the second surface of the detector array being connected to said conductor tracks by bonding wires, a bore in the conductor track carrier for each detector element, the bonding wires of the first connections of the detector elements being guided through said bores in the conductor track carrier towards a side of the conductor track carrier facing away from the detector array, for connection to the conductor tracks formed on the surface of the conductor track carrier facing away from the detector array, and the conductor tracks being guided to signal-processing electronics to process signals from individual detector elements; and

a frame for holding said detector modules on a substantially hemispherical surface about a material sample to be examined;

said substantially hemispherical surface being in the form of a capped icosahedron structure.